The new construction portion of the access road would be developed to a 24-foot wide paved surface, with 3-foot-wide shoulders extending on both sides. The upgraded portion of Plymouth Industrial Road would be widened to 36 feet to allow for two-way traffic to the grain facility and a turn lane to the PGF. A typical cross-section of the roadway is shown on Figure 2-5.

The new portion of the access road would cross Fourmile Canyon, an intermittent stream. This usually dry drainage would be crossed with a fill section which would include two culverts to allow water flows. The culverts would be designed to accommodate 100-year storm flows. A plan view of the Fourmile Canyon is also shown on Figure 2-5.

Due to topographic changes along the new construction portion of the access road, cut and fill grading would be required. The estimated cut volume is approximately 5,837 cubic yards; the fill volume is 4,997 cubic yards. The balance of excess material would be used in construction of the wastewater storage pond on the plant site (see Figure 2-3) or the temporary rail off-load platform (discussed below).

As part of providing site access, a temporary rail offload platform would be constructed adjacent to the BNSF rail siding that serves the AgriNorthwest grain facility (see Figure 2-3). This platform would be used to off-load equipment and materials transported to the plant site by rail. A graded pad surfaced with crushed rock would be constructed. The pad would provide a stable and level platform for location of an overhead crane to be used for off-loading the rail cars to heavy load transporters. The transporters would move material and equipment over the access road to the plant site. If necessary, portions of Plymouth Industrial Road may be repaired or upgraded to accommodate heavy equipment and material loads.

## 2.2.8 PROJECT CONSTRUCTION/CONSTRUCTION SCHEDULE

### 2.2.8.1 Construction Schedule

The overall development schedule for the PGF is as follows.

- An application for a Conditional Use/Special Permit was filed with Benton County to initiate the state regulatory review process on December 21, 2001.
- A request for transmission interconnection was filed with BPA on December 14, 2001 and initiated the federal review and NEPA process.
- Project permitting is anticipated to be completed in December 2002.
- Engineering, equipment procurement, and contractor selection would occur between first quarter 2003 and second quarter 2003.
- Project construction and pre-operational testing would occur from third quarter 2003 to third quarter 2005.
- The commercial on-line date for the PGF is August 2005.

PGF construction would last 24 months, from approximately August 2003 through August 2005, as shown in Figure 2-6. The first 3 months would involve construction of access roads and other temporary components necessary for onsite construction (e.g., the off-load platform for off-loading rail-transported equipment).

### 2.2.8.2 Construction Sequence – Power Plant

The general construction sequence for the facilities constructed within the boundary of the power plant site itself would be as follows:

- **Site Preparation –** Site preparation would include removal of surface vegetation and grading of construction areas. The area designated for parking, laydown, and office trailers would be graded and a covering of gravel applied to minimize windborne dust emission. During this phase, the stormwater pond would also be excavated and a temporary stormwater collection system (berms, silt curtains, etc.) would be deployed as required.

  A small volume water well would be installed onsite for potable water to be used by site workers (construction and operation) for drinking and other personal use.

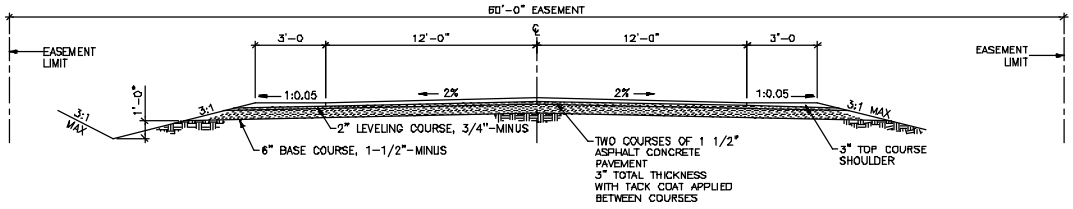
  Site fencing and security checkpoints would be installed. Also, two overhead cranes would be installed for movement and placement of materials and equipment.

  Temporary power to supply construction project activities would be installed by the Benton REA. This would consist of the installation of a temporary circuit between the REA's Christy Road Substation to the construction site (approximately 4,000 to 4,500 feet).

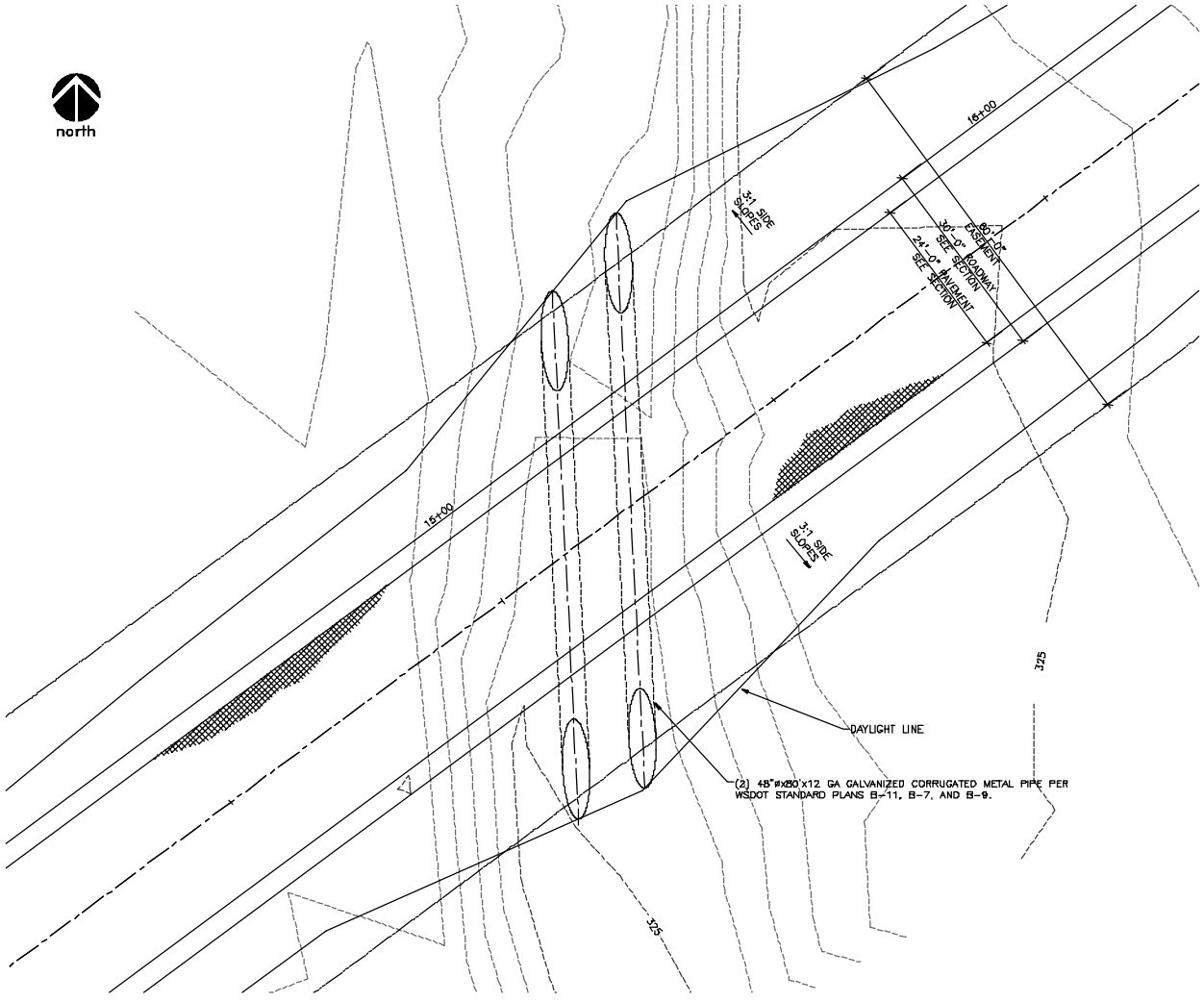
  Excavations for building and equipment foundations would be prepared and the required foundations installed.

  Underground conduits for piping and cabling would be installed. Underground water supply and wastewater piping would be installed.

  The wastewater storage pond would be constructed. As stated above, this pond would be excavated to a design depth as determined during final plant design. However, the final depth would be limited so that any constructed dikes or berms for the pond would be 6 feet or less in height (see Section 2.2.6.). Material excavated from the pond basin and cut slope on the uphill side would be used to build a retaining berm or dike to complete the impoundment. A balanced cut and fill is planned so that no material would require transportation offsite. After completion of grading for the pond, a sand base would be placed and a liner composed of 60-mil. HDPE would be installed. Piping control valves and pumps would also be installed.




ROAD SECTION TYPICAL




CULVERT DETAIL

*Source: Meier Enterprises, Inc.*

Figure 2-5
## Access Road Cross-Section and Fourmile Canyon Crossing

Figure 2–5 Access Road Cross-Section and Fourmile Canyon Crossing (Continued)

| Task Name | Duration | Start | Finish |
|---|---|---|---|
| Site Preparation | 110 days | Mon 8/4/03 | Fri 1/2/04 |
| Construct Balance of Plant | 370 days | Mon 11/3/03 | Fri 4/1/05 |
| Erect Steam Turbine | 65 days | Mon 2/16/04 | Fri 5/14/04 |
| Erect HRSG | 175 days | Tue 6/1/04 | Mon 1/31/05 |
| Erect Combustion Turbine/Gen. | 132 days | Tue 8/3/04 | Wed 2/2/05 |
| Commissioning | 195 days | Mon 7/5/04 | Fri 4/1/05 |
| Performance Testing | 217 days | Fri 10/1/04 | Mon 8/1/05 |
| Availability Test | 50 days | Mon 7/26/04 | Fri 10/1/04 |
| Construct Transmission Line | 30 days | Wed 12/22/04 | Tue 2/1/05 |
| Construct Gas Line | 60 days | Tue 5/10/05 | Mon 8/1/05 |
| Commercial Operation | 0 days | Mon 8/1/05 | Mon 8/1/05 |

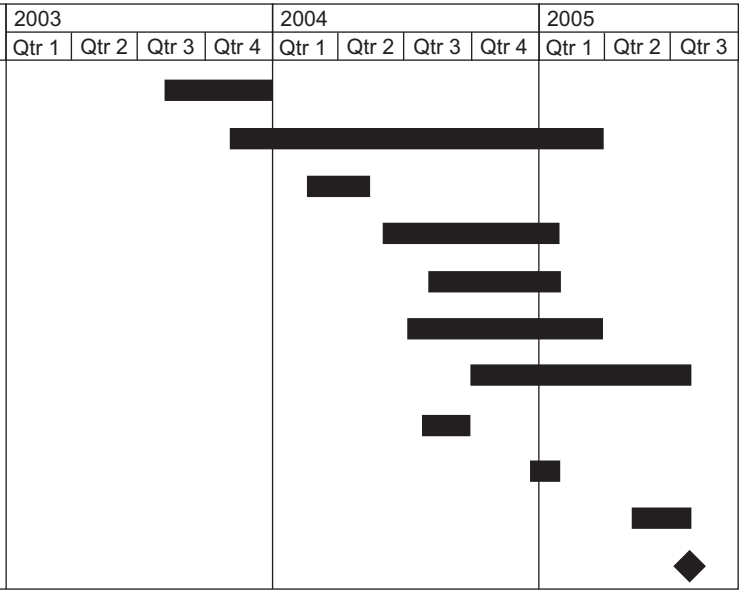



Figure 2-6
**Construction Schedule**

Figure 2-6 Construction Schedule (Continued)

During site grading, foundation excavation, and pond construction, normal construction practices to minimize airborne dust would be observed. This would include periodic watering of construction areas and replanting of grading areas that are not part of the planned construction area.

- **Install Major Plant Components** – Following completion of the site preparation phase, the major equipment components would be delivered to the site and installed. The HRSG, gas turbine, stream turbine, condenser and step-up transformers would all be manufactured elsewhere and shipped to the project location by railroad. These components would be both large and heavy, requiring special handling. The railcars would be brought to the existing rail siding located at the AgriNorthwest grain facility adjacent to the plant site. An offload platform would be installed adjacent to the rail siding to accommodate a portable heavy lift crane. The crane would be temporarily located at the siding for component offloading. As the components arrive, they would be offloaded from the rail cars onto a special heavy-lift, tractor-trailer transporter for movement to the site. The heavy-lift transporter would incorporate additional axles and tires to minimize and spread the load over the road surface in accordance with the load capability of the road. After loading, the equipment components would be moved from the offload platform to the construction access road and then to the construction laydown area at the plant site. The movement of these components to the construction laydown area would not require travel on any public roads.

  At the plant site, the plant components would be moved into final position by the overhead cranes and final installation would be completed.

  After placement of the combustion and steam turbines, the turbine building would be erected to enclose this equipment.

  During this phase of construction sequence, the substation would be constructed.

- **Complete Balance of Plant** – After installation of the major plant components, the balance of the planned systems would be completed. This would include construction of the various storage tanks and installation of overhead pipe-racks and other structures to support steam supply, electrical and cooling, and other piping and cabling systems. The water treatment plant, air-cooled condenser, and cooling towers would be installed at this time.

- **Pre-Operational Testing** – After completion of the plant construction, testing of each system would be undertaken to ensure its operability prior to plant startup. Electrical systems would be energized and tested, plant control systems would be tested, and all piping systems would be hydrostatically tested.

Test water for hydrostatic testing of the plant piping systems would be taken from the plant water supply system, and the piping system would be completely filled. Prior to testing, the system would be cleaned with an acid wash, and all cleaning fluids and contaminants would be collected and disposed offsite. Following testing, the test water would be discharged to the wastewater

storage pond. The test water would not contain any contaminants. It would, however, include mild detergent for final cleaning of the piping, but this cleaner would be in a dilute form and in a concentration that makes it suitable for irrigation use.

Following systems testing, initial operation testing would be undertaken. The turbine would be test-fired, the steam production system would be pressurized, and the steam turbine rotated. During initial operation testing, there may be brief periods when air pollution control equipment is not operational and air emissions would exceed operation standards. However, these conditions are normal for testing and would be an allowable temporary condition of the air permit issued by the local Benton Clean Air Authority. During initial operation testing, the steam system would be vented to the atmosphere when it is necessary to bypass the steam turbine. During these short-term events, the steam vents would produce a reasonably high-volume sound. However, given the sparse distribution of the local population, the rural surroundings, and the short-term nature of the event, little disturbance is anticipated. All testing that would require steam venting would be planned to occur during daytime hours.

Following completion of initial operation testing, the plant would be ready for commercial operation. At this time, contractor temporary trailers and other construction equipment would be removed from the plant site. The portion of the site used for construction laydown and temporary worker parking would be restored to support revegetation. Paving for permanent vehicle and equipment access internal to the site would be completed, as would a permanent worker parking lot and landscaping.

### 2.2.8.3 Construction Sequence – Access Road

Construction of the site access road would be accomplished in two phases: (1) repair and upgrade of the initial portion of Plymouth Industrial Road that extends south from SR 14, and (2) construction of the new access road.

Repair and upgrade of the initial portion of the road would include removal of existing pavement and grading and preparation of the widened roadbed. The roadway would be constructed of an 8-inch-thick base course, a 2-inch-thick leveling course, and two courses of 1.5-inch-thick asphalt concrete. Total roadway thickness would be approximately 13 inches. Roadway shoulders would be finish graded with positive drainage and drainage swales as appropriate.

Construction of the new portion of the access road would begin with surveying, locating underground utilities, and removing vegetation. The new portion of the access road would require cut/fill grading to form a roadway. Grading width along the road alignment would typically range up to 60 feet except at the Fourmile Canyon crossing. The roadway would be watered during construction to minimize dust emissions. Fill material would be mechanically compacted prior to roadway construction. The roadway would be constructed as described above.

### 2.2.8.4 Construction Sequence – Gas Pipeline

As discussed in Section 2.2.5, an 8-inch gas pipeline lateral would be installed by the Williams Co. to supply natural gas fuel to the PGF. This lateral would begin at the Williams Co. compressor station and terminate at a meter and control station constructed at the southwest

corner of the PGF site. The overall length of the pipeline is expected to be approximately 800 feet.

The typical right of way configuration and construction method for the gas pipeline is shown on Figure 2-7. The cross-section of the pipeline installation shows a 75-foot-wide right-of-way across the Plymouth Farm. The pipeline would be designed, constructed, operated, and maintained in accordance with U.S. Department of Transportation (DOT) regulations in 49 CFR Part 192, Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards; 18 CFR Part 2.6, Guidelines to be Followed by Natural Gas Pipeline Companies in the Planning, Clearing, and Maintenance of Rights-of-Way and the Construction of Aboveground Facilities; and other applicable federal and state regulations. Construction impacts would be minimized through implementation of the Federal Energy Regulatory Commission's (FERC's) Upland Control, Revegetation, and Maintenance Plan (Plan); FERC's Wetland and Waterbody Construction and Mitigation Procedures (Procedures); and restoration recommendations provided by the Natural Resource Conservation Service (NRCS). In accordance with FERC's requirements, Williams Co. would employ an environmental inspector during construction to ensure that all environmental regulations are followed.

Construction of the pipeline would occur in the following general sequence.

- **Marking and Flagging –** Prior to construction, utility lines would be located and marked to prevent accidental damage during construction. Any special agricultural drainage systems would also be noted during the survey. Williams Co. would survey and stake the centerline and the exterior right-of-way boundaries of the proposed pipeline segments prior to construction and would maintain these stakes throughout construction.

- **Clearing and Grading –** An area approximately 25 feet wide would be stripped of topsoil alongside the proposed location of the pipeline trench. Stripped topsoil would be segregated and stockpiled separately from excavated soil.

- **Trenching –** Trenching machines or backhoes would be used to excavate the pipeline trench, which would generally be 7 feet in depth and 5 feet wide to allow working room and a depth sufficient to provide a minimum 5 feet of cover. Soil excavated during trenching would be temporarily stockpiled on the cleared area alongside the trench. Any trench dewatering required would be discharged directly to the ground with the permission of the landowner.

- **Pipe Stringing, Welding, and Coating –** Individual joints of pipe (40-foot-long sections) would be strung along the right-of-way adjacent to the trench. A mechanical pipe-bending machine would be used to bend individual joints of pipe as required, or prefabricated fittings would be used. After stringing and bending are complete, the pipe sections would be aligned and welded together. All welds would be visually and radiographically inspected and any faults immediately repaired. Line pipe, normally mill-coated or yard-coated prior to stringing, would also require a coating at the welded joints prior to final inspection. The entire pipeline coating would be electronically inspected to locate and repair any coating faults or voids.

- **Lowering in Backfilling and Testing –** The completed pipe assembly would be lowered into the trench by side-boom tractors, and the trench would be backfilled using a backfilling machine or bladed equipment. No foreign substances, including skids, welding rods, containers, brush, trees, or refuse of any kind would be permitted in the backfill. Following backfilling, the pipeline would be hydrostatically tested in accordance with DOT regulations by the construction contractor to ensure that the system is capable of operating at the design pressure.

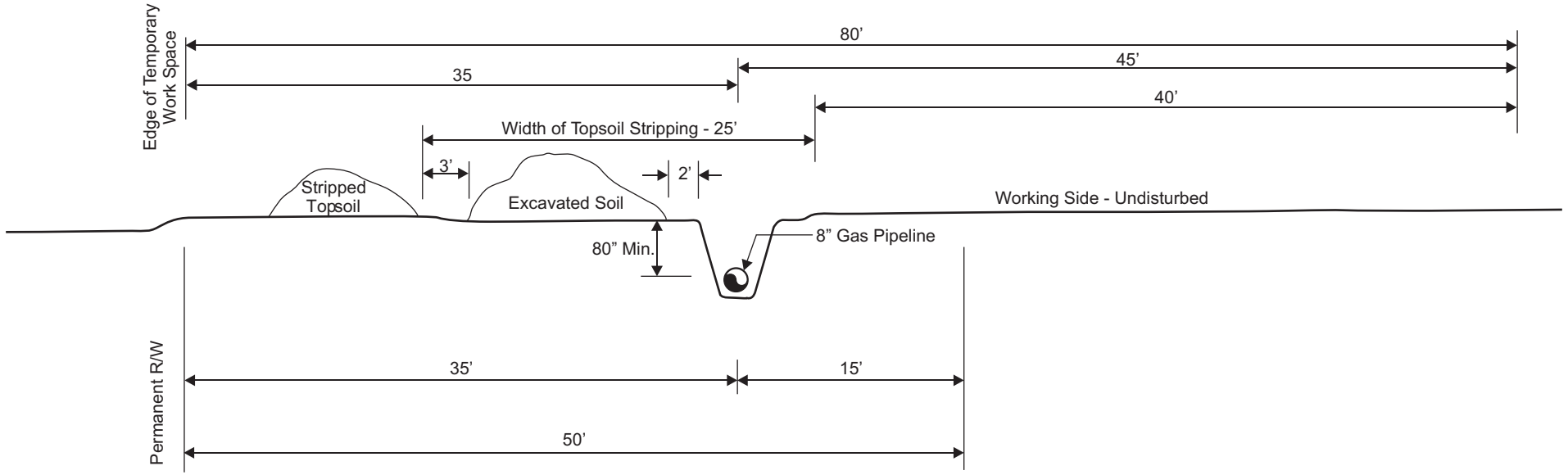
  In the unlikely event that a leak or break occurs during testing, the line would be repaired and retested until the DOT specifications are met. After hydrostatic testing, the test water would be disposed by spreading on the adjacent land. Hydrostatic test water would be supplied from the PGF water supply.

- **Restoration –** Following testing, the work areas would be graded and restored, as near as practicable, to the original contour of the land. Following final cleanup, the right-of-way and extra workspaces would be scarified, where necessary, to loosen compacted areas. Compaction testing would occur in all farmlands. Seeding of the restored right-of-way would only occur on those areas as requested by the landowner, Plymouth Farm.

- **Construction of the Meter Station –** The meter station site would be graded to a prescribed subgrade elevation to allow for proper drainage. Excavation would be completed for all foundations and buried piping. Piping and other meter station equipment would be fabricated and tested offsite at a fabrication facility. The pre-fabricated piping components would be set in place and welded together. All welds 4 inches and larger would be radiographically inspected. After wrapping the buried piping with coating, the piping installation would be backfilled and the site regraded to the prescribed subgrade, and approximately 4 to 6 inches of crushed stone would be installed throughout the meter station site. All aboveground piping and components would be painted. A small building may be installed to house measuring equipment.

### 2.2.8.5 Construction Employment, Truck Trips, and Cost

The average size of the construction workforce would be 130 workers, with a peak of approximately 222 workers between months 14 and 17 of the construction period (September 2005 to December 2005). Figure 2-8 shows the total construction workforce loading over the construction period, and Table 2-4 shows the average number of workers by type that construction would require.




R/W = Right of way

Figure 2-7

## Gas Pipeline Construction

URS

Plymouth Generating Facility
Plymouth, Washington

Figure 2-7 Gas Pipeline Construction (Continued)

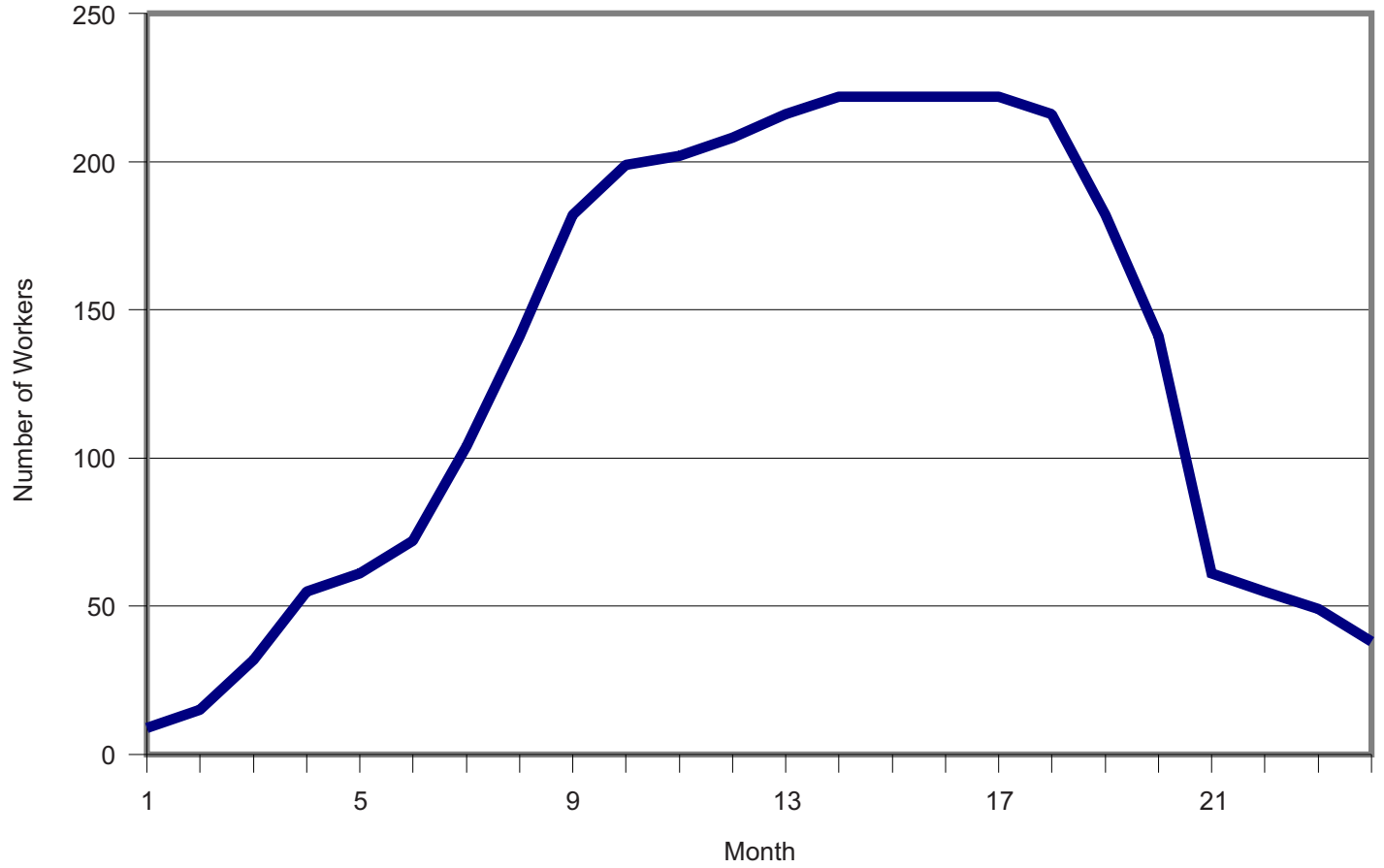



Figure 2-8

**PGF Construction Workforce Schedule**

Figure 2-8 PGF Construction Workforce Schedule (Continued)

**Table 2-4**
**Number of Workers by Type, on Average**

| Category | Average Number of Workers |
|---|---|
| Sheetmetal | 2 |
| Pipefitter | 31 |
| Painter | 3 |
| Operator | 6 |
| Millwright | 15 |
| Laborer | 9 |
| Ironworker | 9 |
| Electrician | 24 |
| Carpenter | 15 |
| Boilermaker | 15 |
| Total | 130 |

Truck trips to and from the PGF for construction-related deliveries would average 10 deliveries or 20 trips per day. At the peak construction period, the number of deliveries could approach 20, and the number of truck trips could approach 40.

The total cost of PGF construction would be approximately $207 million, including approximately $9 million spent on labor (wages and benefits for workers), and the remaining $198 million spent on materials, supplies, equipment, and other non-labor resources.

### 2.2.8.6 Operation Employment and Cost

The PGF would be operational 24 hours per day 7 days per week and require 20 permanent employees, working either two 12-hour shifts or three 8-hour shifts. The number of employees onsite would range from 2 to 12, according to the shift (see Table 2-5). Positions required for PGF operation include those listed in Table 2-5.

The annual cost of PGF operation would be approximately $82 million, $1.6 million for labor (wages and benefits for employees) and the remaining amount for fuel ($70 million), materials, supplies, equipment, and contracted maintenance labor.

### 2.2.8.7 Fiscal Impacts

Fiscal impacts attributable to PGF construction that would occur within the three-county area of Benton, Franklin, and Umatilla counties would include $25 million in supplies purchased from local suppliers, and increased sales tax revenues from purchases (such as food, gasoline, and lodging) made by construction workers. In addition, Benton County would experience an increase in sales tax revenue of approximately $2.5 million due to sales tax on the construction contract.

PGF operation would result in permanent fiscal impacts. Benton County would experience an increase in annual property tax revenue of approximately $3.2 million due to the increase in assessed value of the parcels on which the PGF would be constructed.

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PGF operation would result in permanent fiscal impacts. Benton County would experience an increase in annual property tax revenue of approximately $3.2 million due to the increase in assessed value of the parcels on which the PGF would be constructed.

**Table 2-5**
**PGF Operation Employment**

| Possible Shift Schedules | | |
|---|---|---|
| Schedule 1: Two 12-hour shifts | 12 employees | 6 a.m. to 6 p.m. |
| | 2 employees | 6 p.m. to 6 a.m. |
| Schedule 2: Three 8-hour shifts | 12 employees | 8 a.m. to 4 p.m. |
| | 2 employees | 4 p.m. to 12 midnight |
| | 2 employees | 12 a.m. to 8 a.m. |

| Category | Required Positions |
|---|---|
| Plant Manager | 1 |
| Administrative Assistant | 1 |
| Safety and Environmental Coordinator | 1 |
| Plant Engineer | 1 |
| Shift Supervisor | 5 |
| Unit Operator | 5 |
| Water treatment operator | 1 |
| Mechanic | 3 |
| Instrument Technician | 1 |
| Mechanical/Electrical Technician | 1 |
| Total | 20 |

## 2.3 PROPOSED ACTION POWER TRANSMISSION

The project would interconnect with the proposed BPA McNary-John Day 500-kV transmission line. The line is located in the BPA transmission right-of-way corridor approximately 0.6 mile to the north of the plant site. Interconnection with this line would effectively interconnect the PGF to BPA's McNary Substation complex, which is located in Oregon adjacent to I-82 as it crosses the Columbia River. A formal Generation Interconnection Request and a request for firm transmission service have been filed with BPA.

The existing BPA transmission corridor currently includes two separate transmission lines. The southern line operates at 230 kV, and the northernmost operates at 230 or 345 kV, depending on energy flow requirements as managed by the BPA. The proposed McNary-John Day 500-kV line would be an additional transmission line constructed on the north side of the corridor immediately adjacent to the existing 230/345-kV line. This would place the existing 230/345-kV line in the middle of the corridor. Thus the proposed PGF interconnection would cross under both the existing lines to tie into the new 500-kV line.

### 2.3.1 TRANSMISSION INTERCONNECTION CONFIGURATION

The transmission interconnection would consist of four to six new transmission towers located between the PGF substation and the BPA transmission right-of-way corridor. The number and configuration of the towers would be determined during final design. The new towers would be mono-pole configuration, as shown in Figure 2-9. The towers would be approximately 100 to 140 feet tall, with the conductors spaced 12 to 16 feet apart.